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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION N
10/825,719	04/16/2004	Larry Y. L. Mo	PA2739US	9949
22830	7590	10/04/2004	EXAMINER	
CARR & FERRELL LLP			JAWORSKI, FRANCIS J	
2200 GENG ROAD			ART UNIT	PAPER NUMBER
PALO ALTO, CA 94303			3737	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/825,719

**Applicant(s)**

MO ET AL.

**Examiner**

Jaworski Francis J.

**Art Unit**

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>05242004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 – 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 – 6, 7, 13-16 of U.S. Patent No. 6,733,455. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent is narrower in scope with respect to this application's claiming, and is readable thereagainst as follows:

The Mo et al patent specifically claims both structure and method of use of a clutter HP filter optimization processor and associated method which iteratively computes magnitude and phase change (frequency) indexes relative to thresholds on individual data packets in a loopback process, including whether a filtered signal is less than a threshold, and where the total spectral power is less

Art Unit: 3737

than a threshold, in realtime while the imaging data collecting is occurring, and from among sets of HPF parameters which constitute the 'separate filters' in software, whereupon two selections is an obvious minimum for the term 'sets', and by determining whether an imaginary first order autocorrelation part is greater than a constant times the imaginary part where the constant is determined by the frequency threshold for the clutter present, for data packets associated with individual pixels for a color flow region, the frequency threshold determined by phase shift equivalent necessarily pertaining to a color flow signal in color flow imaging process being described,

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[ Parenthesized claim numbers follow the rejection statement which is directed towards that claim or claims.]

Claims 1 – 7 and 17—22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hager et al (US6689064)

Hager et al teaches a system and method for its use, the system comprising a processor 120 (i.e. a device accessed by processor interface 125; also in the composite signal strength+signal frequency embodiment Fig. 6 the threshold lookup table 615 receives a processor input) configured to select optimal filter coefficients for filtering out clutter from ultrasound color flow imaging data by an iterative process (see col. 1 lines 20-31 and col. 2 lines 10 - 13) wherein a composite calculation for filter coefficient optimization is produced (Fig. 4) by using both signal amplitude strength and mean frequency (col. 11 line 32 – col. 14 line 6 by formulaed relation to thresholds, where the threshold lookup table 615 produces an index from the threshold comparisons, see col. 13 lines 45-60. (Claims 1, 17)

Operations are performed on colorflow data packets, see step 405 of Fig. 4 (Claims 2, 18).

The filter zeroes are determined by where signal strength falls in relation to thresholded ranges, see col. 4 lines 17 – 19). (Claim 3).

Similarly the filter order as well as the zero locations are changed by multiple frequency thresholds defining ranges, see col. 4 lines 22-24 and 31 – 34. (Claims 4, 21).

For very low signal strength or power, fixed filtering may be used for range 4 or coefficients for the FIR filter are computed for range 3; in either case contingent upon power being less than the next higher threshold, see col. 6 lines 10-57. (Claims 5, 20).

Art Unit: 3737

The invention pertains to use with an in-use medical imaging system with interaction with the diagnostician, see col. 14 lines 20-44. (Claims 6, 19).

Since a filter coefficient LUT or lookup table is used to store coefficients for selection, see col. 9 lines 30-35, this necessarily means a finite number of filter options. (Claims 7, 22)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-16, 23, 25-29, 31 -32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hager et al (US6689064).

Since as noted above a lookup table stores FIR coefficient options, it would have been inherently obvious in a primitive form to operate Hager et al for example with fewer than the four power/frequency threshold range options and limit the FIR coefficient selection options accordingly. (Claims 8, 15 – 16, 23, 31 - 32).

Since in Hager et al the frequency shift for the data is determined by the autocorrelation lag ratio of imaginary to real components and this in turn is compared with frequency thresholds to determine clutter range, this would be

tantamount to using the range threshold per se as the constant although not explicitly so stated, see col. 11 lines 55 – 66. (Claims 9, 25)

Since a cascaded arrangement may be used, this would leave a so-filtered signal as input to the next stage, see Fig. 2. (Claim 10).

As noted above, signal magnitude or power is assessed in relation to frequency ranges and against high and low limiting thresholds. (Claims 11-12, 28-29).

As noted previously, the filtering is per-packet, see step 405. (Claims 13, 26).

The process is in real-time insofar as it pertains to an in-use medical imager interacting with the diagnostician, see col. 14 as noted. (Claims 14, 27).

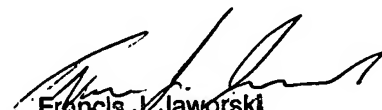
Claims 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hager et al in view of applicants prior art admissions.

Since in para [0016] the relationship between frequency shift/thresholding is noted to equationally relate to phase change between successive packet firings, the claim 24 feature of a phase change thresholdt is equivalent to a frequency threshold. (Claims 24, 30)..

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 703-308-3061.

FJJ:fjj

09282004

  
Francis J. Jaworski  
Primary Examiner